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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/649,688 | 08/28/2003 | Toru Kokogawa | 242013US3 | 6770 |

22850 7590 04/21/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

| EXAMINER |
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CHOI, JACOB Y

| ART UNIT | PAPER NUMBER |
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2875

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/649,688 | Applicant(s) KOKOGAWA, TORU | |
| | Examiner Jacob Y. Choi | Art Unit 2875 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/28/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/28/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the principal diffusion direction must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2875

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 recites the limitation "the principal diffusion direction" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 8/28/2003 was considered by the examiner.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 5, 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (USPN 6,874,902) in view of Ohkawa (USPN 6,746,130).

Regarding claims 1 and 3, Yamashita et al. discloses a light source (1), a light guide plate (3) having a light incident surface (31) through which light from the light source enters, a light exit surface (33) through which light exits, and an anisotropic diffraction grating formed on the light exit surface (column 14, lines 36-57; "*a light diffusions layer may be formed at the light emission surface (33) of the light deflecting device ... it is preferable that a light diffusions layer having anisotropic diffusing property is formed to diffuse light in a desired direction*" ... etc) or a surface opposite to the light exit surface for diffusing light in a principal diffusing direction along the light incident surface (Figure 1; columns 10-11, lines 27-14), and a prism sheet (light deflecting device (4), for collecting light traveling from the light incident surface to an opposite side surface, having a plurality of prism structures on a surface opposite to the light exit surface (42; down-ward pointing), each of the plurality of prism structures having an apex angle of 50 to 70 degrees.

Yamashita et al. discloses the claimed invention except for the detailed range of the apex angle.

Ohkawa discloses the specific detailed range of the apex angle (Figure 3; column 3, lines 15-18) of 66 degrees.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apex angles of Yamashita et al., 50-70 degrees, to 66 degrees to achieve desired front luminance, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 223.

Note: claims in the pending application should be given their broadest reasonable interpretation. In re Pearson, 181 USPQ 641 (CCPA 1974).

Regarding claim 5, Yamashita et al. in view of Ohkawa discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the anisotropic diffraction grating does not substantially diffuse light in a direction perpendicular to the principal diffusion direction.

Regarding claim 6, Yamashita et al. in view of Ohkawa discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the light guide plate has smooth prism structures on a surface opposite to a surface where the anisotropic diffraction grating is formed for controlling an emission angle of light exiting through the light exit surface (Figure 3).

Regarding claim 8, Yamashita et al. in view of Ohkawa discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the prism sheet is directly placed on the light exit surface.

Regarding claim 10, Yamashita et al. in view of Ohkawa discloses a planar light source unit, and a display panel displaying images (LCD; columns 102, lines 14-36) by controlling transmission of light from the planar light source unit, the planar light source unit comprising a light source (1), a light guide plate (3) having a light incident surface (31) through which light from the light source enters, a light exit surface (33) through which light exits, and an anisotropic diffraction grating formed on the light exit surface (column 14, lines 36-57; *"a light diffusions layer may be formed at the light emission surface (33) of the light deflecting device ... it is preferable that a light diffusions layer*

Art Unit: 2875

having anisotropic diffusing property is formed to diffuse light in a desired direction "...
etc) or a surface opposite to the light exit surface for diffusing light in a principal
diffusing direction along the light incident surface (Figure 1; columns 10-11, lines 27-
14), and a prism sheet (light deflecting device (4)), for collecting light traveling from the
light incident surface to an opposite side surface, having a plurality of prism structures
on a surface opposite to the light exit surface (42; down-ward pointing), each of the
plurality of prism structures having an apex angle of 50 to 70 degrees.

Yamashita et al. discloses the claimed invention except for the detailed range of
the apex angle.

Ohkawa discloses the specific detailed range of the apex angle (Figure 3; column
3, lines 15-18) of 66 degrees.

It would have been obvious to one having ordinary skill in the art at the time the
invention was made to modify apex angles of Yamashita et al., 50-70 degrees, to 66
degrees to achieve desired front luminance, since it has been held that where the
general conditions of a claim are disclosed in the prior art, discovering the optimum or
workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 223.

8. Claims 2, 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Yamashita et al. (USPN 6,874,902) and Ohkawa (USPN 6,746,130) as applied to
claim 1 above, and further in view of Applicant's admitted prior art (JP 2002-231029).

Regarding claim 2, Yamashita et al. and Ohkawa discloses the claimed invention except for the anisotropic diffraction grating comprises a hologram pattern.

Applicant's admitted prior art (JP 2002-231029) teaches a known technique of employing a backlight unit having a light guide plate with a scattering hologram on the top surface.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify anisotropic diffusing layer of Yamashita et al. with a well-known technique of employing a scattering hologram to achieve more efficient use of light and higher front luminance.

Regarding claim 4, Yamashita et al. and Ohkawa in view of applicant's admitted prior art (JP 2002-231029) discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the workable ranges of the plurality of prism structures having an apex angle of 50 to 70 degrees.

Regarding claim 7, Yamashita et al. and Ohkawa in view of applicant's admitted prior art (JP 2002-231029) discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the light guide plate has smooth prism structures on a surface opposite to a surface where the anisotropic diffraction grating is formed for controlling an emission angle of light exiting through the light exit surface (Figure 3).

Regarding claim 8, Yamashita et al. and Ohkawa in view of applicant's admitted prior art (JP 2002-231029) discloses the claimed invention, explained above. In addition, Yamashita et al. discloses the prism sheet is directly placed on the light exit surface.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ohkawa (USPN 6,334,690) – surface light source device of side light type and liquid crystal display

Yamashita et al. (US 2004/0022050) – light source device

Bastiaansen et al. (US 2003/0058386) – polarizing device

Kashima et al. (US 2003/0095400) – backlight device for liquid crystal display, having polarization light splitter and light guide with light diffusing surface, and liquid crystal display device

Yamashita et al. (US 2002/0114149) – light source device

Bourdelaïs et al. (USPN 6,846,098) – light diffuser with variable diffusion

Koike et al. (USPN 6,172,809) – surface light source device with polarization function

Yamashita et al. (USPN 6,669,350) – planar light source system and light deflecting device therefor

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Y. Choi whose telephone number is (571) 272-2367. The examiner can normally be reached on Monday-Friday (10:00-7:00).

Art Unit: 2875

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JC



**JOHN ANTHONY WARD
PRIMARY EXAMINER**